velocities of both stars must really be decreased by nearly the amount of the Sun's motion. This probably lies between 10 and 30 kilometers per second.

If we except some of the new stars, which seem to have abnormally high velocities, it is probable that the greatest sidereal velocity in the line of light yet observed is that of the planetary nebula G. C. 4373. Professor KEELER in 1890 showed that this object has a velocity of approach of 65 kilometers (40 miles) per second. The nebula is situated very near the pole of the ecliptic, and its relative velocity is therefore unaffected by the motion of the solar system. W. W. C.

## THE ORBITAL MOTION OF δ *Cephei.*

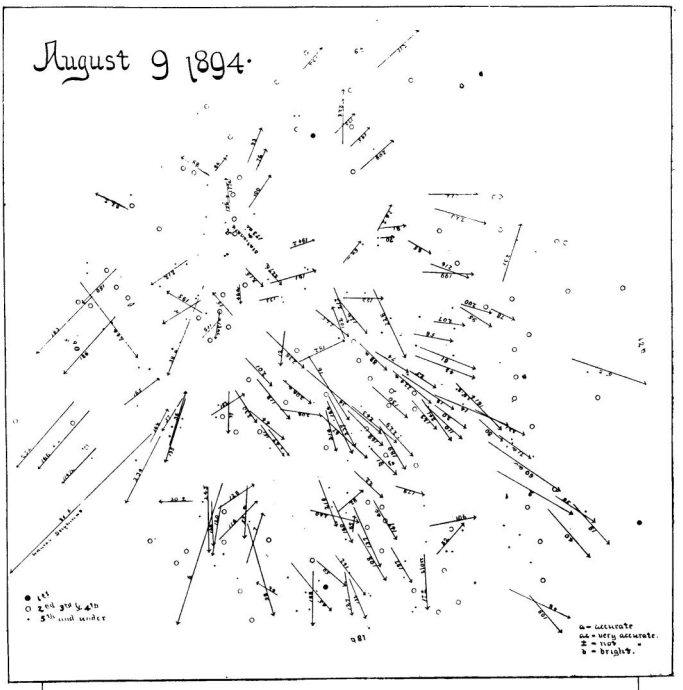
The star δ *Cephei* was discovered to be variable by GOODRICKE in 1784. It oscillates between the 3.7 and 4.9 magnitudes in $5^d\ 8^h\ 47^m\ 39^s$, ascending from 4.9 to 3.7 in about 38 hours and descending to 4.9 in the remaining 91 hours. Dr. BELOPOLSKY of Pulkowa has recently observed the velocity of this star in the line of sight. He has found that the velocity varies in a period coincident with the period of the variation in brightness, and that the star is moving in a very excentric orbit about a dark or relatively dark companion. Thus the variation in brightness is presumably caused by one star eclipsing a part of the other star. W. W. C.

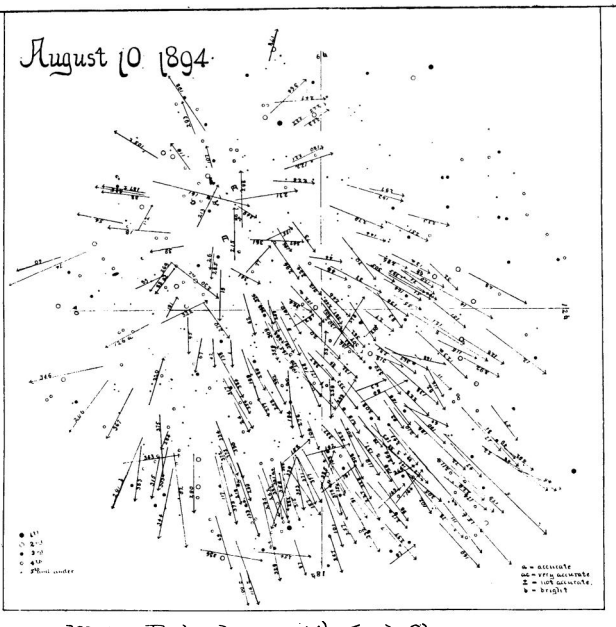
## THE MERIDIAN CIRCLE IN JANUARY.

The following list of corrections, determined on regular observing nights, shows the good performance of the instrument at temperatures comparatively low for Mount Hamilton :

| 1895. | c. | b. | a. | Zenith. | Temp. |
|---|---|---|---|---|---|
| January 25 . . . . . | .00 | − .50 | + .08 | 20″.0 | 37° |
| 26 . . . . . | .00 | − .51 | + .05 | 20 .3 | 34 |
| 28 . . . . . | + .01 | − .53 | − .03 | 21 .2 | 32 |
| 29 . . . . . | .00 | − .54 | + .01 | 19 .7 | 44 |
| 30 . . . . . | − .01 | − .57 | − .01 | 19 .9 | 44 |
| 31 . . . . . | .00 | − .59 | − .11 | 20 .1 | 45 |
| February 1 . . . . . | .00 | − .60 | − .10 | 20 .2 | 47 |

There is rather large variation in the reading of the zenith point, showing some dependence upon the temperature. Ad-




Meteor Paths charted at the Lick Observatory
by C.D. Perrine.

vantage was taken of this period of low temperatures to determine flexure and various other constants for those conditions. The result of series upon three days, for horizontal flexure, at 40°, is 0″.02. This has, however, a probable error of about 0″.10, by independent determination of the sources of error: the difference of the observations of the two collimators, each having a probable error of ± 0″.10, and the error of setting of one collimator upon the other. By extending the observations in each series, smaller nominal errors would appear; but it is preferred rather to take a greater number of series, each short, to avoid sensible changes in the positions of the telescopes, and observed as nearly as possible under the usual conditions. The value of the Declination micrometer at 40° is 48″.15, and that of the Right Ascension micrometer is 3ˢ.214. R. H. T.

### The Discontinuance of *L'Astronomie.*

We learn with regret that *l'Astronomie*, Flammarion's monthly review of popular astronomy, has been discontinued. In the December number, which was the final number, M. Flammarion states that this was necessary on account of difficulties of administration and the insufficiency of his own resources.

W. W. C.

### Drawings of *Mars.*

The drawings of *Mars* (frontispiece), made at the opposition of 1894, with the 36-inch equatorial, using magnifying powers of 350 and 520 diameters, have been selected from my numerous sketches in such a way as to show all the surface of the planet, except the invisible north polar regions. In general, no attempt was made to draw the details which were visible near the limb of the planet. W. W. C.

### A 48-inch Telescope.

The *Bulletin* of the Astronomical Society of France is authority for the statement that work has actually commenced on a 48-inch refracting telescope. The length is understood to be in the neighborhood of 200 feet. It is reported that the instrument is to be completed in time for the Paris Exposition of 1900.

W. W. C.